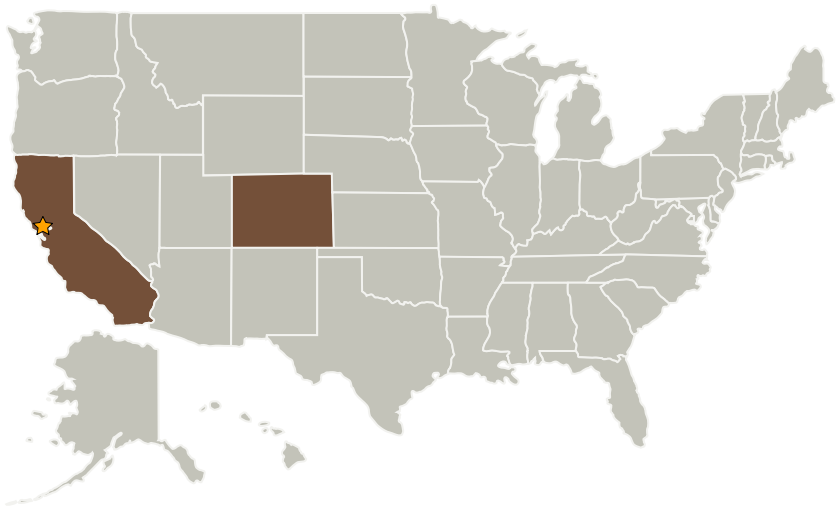
Control of Solid Waste Using Low Temperature Oxidation, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

In February 2004 NASA released "The Vision for Space Exploration". The important goals include extending human presence in the solar system culminating in the exploration of Mars and other remote destinations. To accomplish this goal, affordable, new technologies to support long-term missions must be developed. One of the most critical problems facing such space missions is identification of effective methods to control solid waste. With current waste models, 1300 kg of waste occupying a volume 20 m3 will be generated in a 180-day mission to Mars. Unprocessed waste poses a biological hazard to the crew and continual exposure to odors from untreated waste is a serious threat to crew health and morale. The waste processing methods currently under consideration include incineration, microbial oxidation, pyrolysis and compaction. Although each has advantages, no single method has yet been developed that is safe, recovers valuable resources including oxygen and water, and has low energy and space requirements. In this Phase I SBIR project, TDA will conduct tests with a new, low temperature oxidation process that converts waste to carbon dioxide and water. In addition to having low power requirements, the system will be compact and reliable.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
TDA Research, Inc.	Supporting Organization	Industry	Wheat Ridge, Colorado

Primary U.S. Work Locations	
California	Colorado

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

David Wickham

Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.2 Mission Infrastructure, Sustainability, and Supportability
    - TX07.2.1 Logistics Management